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SEQUENCE LISTING

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<120> Chlamydia antigens and corresponding DNA fragments and uses thereof

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	Ser Lys Ile Ile Leu Lys Trp Thr Phe Asp Lys Tyr Leu Arg Trp Pro																		
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	tac atc cct aga gac aac cac ttc tac atc aac tct att tgg gga gca																	483	
	Tyr Ile Pro Arg Asp Asn His Phe Tyr Ile Asn Ser Ile Trp Gly Ala																		
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	Gln Asn Ser Leu Val Thr Val Asn Gln Gly Ile Leu Gly Asn Met Leu																		
	160			165			170												
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	Asn Asn Ala Arg Phe Glu Asp Pro Ala Phe Asn Asn Phe Trp Ala Ser																		
	175			180			185						190						

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		Glu	Ile	Ile	Leu	Tyr	Asn	Lys	Val									

096987 100101

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	Thr	Thr	Lys	Glu	Gly	Ala	Val	Leu	Cys	Cys	Gln	Asp	Pro	Gln	Ala	Thr	
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	Ala	Arg	Phe	Ser	Gly	Phe	Ser	Thr	Leu	Ser	Phe	Ile	Gln	Ser	Pro	Gly	
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	Asp	Ile	Lys	Glu	Gln	Gly	Cys	Leu	Tyr	Ser	Lys	Asn	Ala	Leu	Met	Leu	
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	Ser	Val	Ser	Phe	Tyr	Gln	Asn	Ala	Ala	Thr	Phe	Gly	Gly	Ala	Ile	His	
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	Ser	Ser	Gly	Pro	Leu	Gln	Ile	Ala	Val	Asn	Gln	Ala	Glu	Ile	Arg	Phe	
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	Glu	Ala	Leu	Thr	Thr	Ala	Ile	Gly	Lys	Gly	Gly	Ala	Val	Cys	Cys	Leu	
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	Ile	His	Leu	Leu	Gln	Asn	Ala	Lys	Phe	Leu	Lys	Leu	Gln	Ala	Arg	Asn	
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	Gly	Tyr	Ser	Ile	Glu	Phe	Tyr	Asp	Pro	Ile	Thr	Ser	Glu	Ala	Asp	Gly	
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	Ser	Thr	Gln	Leu	Asn	Ile	Asn	Gly	Asp	Pro	Lys	Asn	Lys	Glu	Tyr	Thr	
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	Asp	Phe	Lys	Ser	Thr	Ile	Pro	Gln	Asn	Val	Asn	Leu	Ser	Ala	Gly	Tyr	
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	Leu	Val	Ile	Lys	Glu	Gly	Ala	Glu	Val	Thr	Val	Ser	Lys	Phe	Thr	Gln	
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	Lys	Gln															

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	atc	aca	cct	aag	cac	tat	act	tcg	atg	gca	ttt	tcc	caa	ctc	ttt	agt	2131
	Ile	Thr	Pro	Lys	His	Tyr	Thr	Ser	Met	Ala	Phe	Ser	Gln	Leu	Phe	Ser	
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	Tyr	Ala	Ser	Arg	Asn	Pro	Asn	Val	Asn	Val	Gly	Ile	Leu	Ser	Arg	Arg	
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<221> unsure

<222> (1254)...(1323)

<223> n is a or g or c or t/u, unknown, or other

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 Met Pro Ser Ser Trp
 1 5

10

aaa agg tta tta cag gtt ctg tct cac aaa ata gca gct aca gaa agt 163
 Lys Arg Leu Leu Gln Val Leu Ser His Lys Ile Ala Ala Thr Glu Ser
 10 15 20

ggg ggg ggt atc tac gct aag gat att caa cta caa gct cta cct gga 211
 Gly Gly Gly Ile Tyr Ala Lys Asp Ile Gln Leu Gln Ala Leu Pro Gly
 25 30 35

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agc ttc aca att acc gat aat aaa gtc gaa act agt ctt act act agc 259
 Ser Phe Thr Ile Thr Asp Asn Lys Val Glu Thr Ser Leu Thr Thr Ser
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act aat tta tat ggt ggg ggc atc tat tcc agt gga gct gtc acg cta 307
 Thr Asn Leu Tyr Gly Gly Gly Ile Tyr Ser Ser Gly Ala Val Thr Leu
 55 60 65

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acc aat ata tct gga acc ttt ggc att aca gga aac tct gtt atc aat 355
 Thr Asn Ile Ser Gly Thr Phe Gly Ile Thr Gly Asn Ser Val Ile Asn
 70 75 80 85

aca gcg aca tcc cag gat gca gat ata caa ggt ggg ggc att tat gca 403
 Thr Ala Thr Ser Gln Asp Ala Asp Ile Gln Gly Gly Gly Ile Tyr Ala
 90 95 100

acc acg tct ctc tca ata aat caa tgt aat aca ccc att cta ttt agc 451
 Thr Thr Ser Leu Ser Ile Asn Gln Cys Asn Thr Pro Ile Leu Phe Ser
 105 110 115

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aac aac tct gct gcc act aaa aaa aca tca aca aca aag caa att gct 499
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 120 125 130

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 Gly Gly Ala Ile Phe Ser Ala Ala Val Thr Ile Glu Asn Asn Ser Gln
 135 140 145

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ccc att att ttc tta aat aat tcc gca aag tcg gaa gca act aca gca 595
 Pro Ile Ile Phe Leu Asn Asn Ser Ala Lys Ser Glu Ala Thr Thr Ala
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 Ala Thr Ala Gly Asn Lys Asp Ser Cys Gly Gly Ala Ile Ala Ala Asn
 170 175 180

tct gtt act tta aca aat aac cct gaa ata acc ttt aaa gga aat tat 691
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Met Ala Ala Asn Thr Asp Leu Ser Ser Ser Asp Asn Tyr Glu Asn Gly
25 30 35

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gca att act cct gca gat aaa agc tgt ttt aca aac aca gga gga gca 355
Ala Ile Thr Pro Ala Asp Lys Ser Cys Phe Thr Asn Thr Gly Gly Ala
70 75 80 85

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ctt acg cat gat ggt gct gca att aac aat acc aac aca gct ctt tct 451
Leu Thr His Asp Gly Ala Ala Ile Asn Asn Thr Asn Thr Ala Leu Ser
105 110 115

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act gcg act ttt act gac aat gcc agt gtc acc ctc caa aaa aat act 595
Thr Ala Thr Phe Thr Asp Asn Ala Ser Val Thr Leu Gln Lys Asn Thr
150 155 160 165

50

tca	gaa	aaa	gat	gga	gct	gca	gtt	tct	gcc	tac	agc	atc	gat	ctt	gct	643
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Lys Thr Thr Thr Ala Ala Leu Leu Asp Gln Asn Thr Ser Thr Lys Asn
185 190 195

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																		55	60	65		
	tta gtt caa gaa att cta ccc tta ctg cct ggc atc tct ata gcc cca																	355				
	Leu Val Gln Glu Ile Leu Pro Leu Leu Pro Gly Ile Ser Ile Ala Pro																					
																		70	75	80	85	
	cat cgc tgt gca cct ttc gga gcc ttc tat ctt cta gat atg cta agt																	403				
	His Arg Cys Ala Pro Phe Gly Ala Phe Tyr Leu Leu Asp Met Leu Ser																					
																		90	95	100		
40	aaa aag atc cgt cct tgt gga att aca gaa gaa atc ttt ctt cct gca																	451				
	Lys Lys Ile Arg Pro Cys Gly Ile Thr Glu Glu Ile Phe Leu Pro Ala																					
																		105	110	115		
	tcc tca gca aat gct ata ctt tac tat aca ggt cct gta aag atc gct																	499				
	Ser Ser Ala Asn Ala Ile Leu Tyr Tyr Thr Gly Pro Val Lys Ile Ala																					
																		120	125	130		
	tta atc aac tgc cta ggt ctt tat tct att gct aaa gag ttg aag cac																	547				
50	Leu Ile Asn Cys Leu Gly Leu Tyr Ser Ile Ala Lys Glu Leu Lys His																					
																		135	140	145		
	att ctg gat aag gtt gtg att gaa cga gtg aag aat gct ctc tcc cct																	595				
	Ile Leu Asp Lys Val Val Ile Glu Arg Val Lys Asn Ala Leu Ser Pro																					
																		150	155	160	165	


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<210> 14
<211> 552
<212> PRT
20 <213> Chlamydia pneumoniae

<400> 14
Met Val Ser Ser Pro Ile Leu Asn Val Pro Leu Lys Asn His Ala Ser
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Val Ser Gly Lys Phe Thr His Arg Glu Val Ser Lys Leu Ala Ser Asp
          20          25          30

Leu Lys Ser Gly Ala Met Ser Phe Val Pro Glu Val Leu Ser Glu Glu
  35          40          45

Thr Ile Ser Ser Asp Leu Gly Lys Lys Gln Cys Thr Gln Gly Ile Ile
  50          55          60

Ser Ala Cys Cys Gly Leu Ala Met Leu Ile Val Leu Met Ser Val Tyr
  65          70          75          80

Tyr Arg Phe Gly Gly Val Ile Ala Ser Gly Ala Val Leu Leu Asn Leu
          85          90          95

40 Leu Leu Ile Trp Ala Ala Leu Gln Tyr Leu Asp Ala Pro Leu Thr Leu
          100          105          110

Ser Gly Leu Ala Gly Ile Val Leu Ala Met Gly Met Ala Val Asp Ala
          115          120          125

Asn Val Leu Val Phe Glu Arg Ile Arg Glu Glu Phe Leu Leu Ser Gln
  130          135          140

50 Ser Leu Lys Lys Ser Val Glu Lys Gly Tyr Thr Lys Ala Phe Gly Ala
  145          150          155          160

Ile Phe Asp Ser Asn Leu Thr Thr Val Leu Ala Ser Ala Leu Leu Phe
          165          170          175

Phe Leu Asp Thr Gly Pro Ile Lys Gly Phe Ala Leu Thr Leu Ile Leu
          180          185          190

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	Gly	Ile	Phe	Ser	Ser	Met	Phe	Thr	Ala	Leu	Phe	Met	Thr	Lys	Phe	Phe	
			195					200						205			
	Phe	Met	Leu	Trp	Met	Asn	Lys	Thr	Gln	His	Thr	Gln	Leu	His	Met	Met	
		210					215					220					
	Asn	Lys	Phe	Val	Gly	Ile	Lys	His	Asp	Phe	Leu	Arg	Gly	Cys	Lys	Lys	
		225				230					235					240	
10	Leu	Trp	Ala	Val	Ser	Gly	Ser	Val	Phe	Leu	Leu	Gly	Cys	Val	Ala	Leu	
					245					250					255		
	Gly	Phe	Gly	Ala	Trp	Asn	Ser	Val	Leu	Gly	Met	Asp	Phe	Lys	Gly	Gly	
				260					265					270			
	Tyr	Ala	Phe	Thr	Phe	Asn	Pro	Lys	Glu	His	Gly	Ile	Ser	Asp	Val	Ala	
			275					280					285				
20	Gln	Met	Arg	Gly	Lys	Val	Val	His	Lys	Leu	Gln	Glu	Ala	Gly	Leu	Ser	
		290					295					300					
	Ser	Arg	Asp	Phe	Arg	Ile	Gln	Thr	Phe	Gly	Ser	Ser	Glu	Lys	Ile	Lys	
		305				310					315					320	
	Ile	Tyr	Phe	Ser	Asp	Lys	Ala	Leu	Ser	Tyr	Thr	Lys	Gln	Ile	Arg	Ala	
					325					330					335		
	Ser	Leu	Leu	Lys	Leu	Thr	Ile	Met	Ser	Trp	Arg	Tyr	Cys	Gly	Ile	Val	
				340					345					350			
30	Val	Arg	Asn	Arg	Pro	Arg	Phe	Leu	Tyr	Gly	Asn	Ser	Lys	Arg	Asn	Ala	
			355					360					365				
	Lys	Phe	Trp	Ser	Lys	Val	Ser	Ser	Lys	Leu	Ser	Lys	Lys	Met	Arg	Tyr	
		370					375					380					
	Gln	Ala	Thr	Ile	Gly	Leu	Leu	Gly	Ala	Leu	Ala	Ile	Ile	Leu	Leu	Tyr	
		385				390					395					400	
40	Val	Ser	Leu	Arg	Phe	Glu	Trp	Gln	Tyr	Ala	Phe	Ser	Ala	Val	Cys	Ala	
					405					410					415		
	Leu	Ile	His	Asp	Leu	Leu	Ala	Thr	Cys	Ala	Val	Leu	Phe	Ile	Ala	His	
				420					425					430			
	Phe	Phe	Leu	Lys	Lys	Ile	Gln	Ile	Asp	Leu	Gln	Ala	Ile	Gly	Ala	Leu	
			435					440					445				
	Met	Thr	Val	Leu	Gly	Tyr	Ser	Leu	Asn	Asn	Thr	Leu	Ile	Ile	Phe	Asp	
		450					455					460					
50	Arg	Ile	Arg	Glu	Asp	Arg	Gln	Ala	Asn	Leu	Phe	Thr	Pro	Met	His	Val	
		465				470					475					480	
	Leu	Val	Asn	Asp	Ala	Leu	Gln	Lys	Thr	Phe	Ser	Arg	Thr	Val	Met	Thr	
					485					490						495	

Thr Ala Thr Thr Leu Ser Val Leu Leu Met Leu Leu Phe Ile Gly Gly
 500 505 510

Ser Ser Val Phe Asn Phe Ala Phe Ile Met Thr Ile Gly Ile Leu Leu
 515 520 525

Gly Thr Leu Ser Ser Leu Tyr Ile Ala Pro Pro Leu Leu Leu Phe Met
 530 535 540

10 Val Arg Lys Glu Asn Arg Ser Lys
 545 550

<210> 15

<211> 196

<212> PRT

<213> Chlamydia pneumoniae

<400> 15

20 Met Ser Ser Asn Leu His Pro Val Gly Gly Thr Gly Thr Gly Ala Ala
 1 5 10 15

Ala Pro Glu Ser Val Leu Asn Ile Val Glu Glu Ile Ala Ala Ser Gly
 20 25 30

Ser Val Thr Ala Gly Leu Gln Ala Ile Thr Ser Ser Pro Gly Met Val
 35 40 45

30 Asn Leu Leu Ile Gly Trp Ala Lys Thr Lys Phe Ile Gln Pro Ile Arg
 50 55 60

Glu Ser Lys Leu Phe Gln Ser Arg Ala Cys Gln Ile Thr Leu Leu Val
 65 70 75 80

Leu Gly Ile Leu Leu Val Val Ala Gly Leu Ala Cys Met Phe Ile Phe
 85 90 95

His Ser Gln Leu Gly Ala Asn Ala Phe Trp Leu Ile Ile Pro Ala Ala
 100 105 110

40 Ile Gly Leu Ile Lys Leu Leu Val Thr Ser Leu Cys Phe Asp Glu Ala
 115 120 125

Cys Thr Ser Glu Lys Leu Met Val Phe Gln Lys Trp Ala Gly Val Leu
 130 135 140

Glu Asp Gln Leu Asp Asp Gly Ile Leu Asn Asn Ser Asn Lys Ile Phe
 145 150 155 160

50 Gly His Val Lys Thr Glu Gly Asn Thr Ser Arg Ala Thr Thr Pro Val
 165 170 175

Leu Asn Asp Gly Arg Gly Thr Pro Val Leu Ser Pro Leu Val Ser Lys
 180 185 190

Ile Ala Arg Val
 195

00868937 100101

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Met Thr Ile Arg Ile Leu Ala Glu Gly Leu Ala Phe Arg Tyr Gly Ser
  1             5             10             15
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Asp Phe Ile Gly Ile Ile Gly Pro Asn Gly Gly Gly Lys Ser Thr Leu
35 40 45

20	Thr	Phe	Pro	Ser	His	Ser	Ala	Gly	Lys	Gln	Thr	His	Ser	Met	Ile	Gly
	65					70					75					80

Lys Asp Val Val Leu Ser Gly Arg Leu Ser Gln Leu Ser Trp His Gly
100 105 110

Val Gly Leu Ser Asp Thr Thr Thr Thr Ala Phe Ala His Leu Ser Gly
130 135 140

Glu Ile Leu Ile Leu Asp Glu Pro Thr Thr Asn Ile Asp Pro Asp Asn
165 170 175

Ile Leu Met Val Thr His Asp Leu His His Thr Thr Asn Tyr Phe Asn
195 200 205

Asp Leu Asn Arg Pro Ile Leu Leu Ser Ser Tyr Lys Asn Gln Glu Phe
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<210> 17
<211> 278
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<212> PRT

<213> Chlamydia pneumoniae

<400> 17

Met His Lys Val Ile Val Phe Ile Phe Leu Thr Leu Tyr Ser Leu Lys
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Ser Tyr Gly Asn Asp Val Ile Asp Lys Pro His Val Leu Val Ser Ile
 20 25 30

10

Ala Pro Tyr Lys Phe Leu Val Glu Gln Ile Ala Glu Glu Thr Cys Phe
 35 40 45

Val Tyr Ala Ile Val Thr Asn His Tyr Asp Pro His Thr Tyr Glu Leu
 50 55 60

Pro Pro Gln Gln Ile Lys Glu Leu Arg Gln Gly Asp Leu Trp Phe Arg
 65 70 75 80

20

Ile Gly Glu Ala Phe Gly Lys Asn Leu Leu Glu Lys Pro Tyr Met Gln
 85 90 95

Gln Val Asp Leu Ser Gln Asn Val Ser Leu Ile Gln Gly Lys Pro Cys
 100 105 110

Cys Asn Gln His Thr Thr Asn Tyr Asp Thr His Thr Trp Leu Ser Pro
 115 120 125

30

Lys Asn Leu Lys Val Gln Val Glu Thr Ile Val Thr Thr Leu Ser Lys
 130 135 140

Lys Tyr Pro Gln His Ala Thr Leu Tyr Gln Ser Asn Gly Glu Lys Leu
 145 150 155 160

Leu Leu Ala Leu Asp Gln Leu Asn Glu Glu Ile Leu Thr Ile Thr Ser
 165 170 175

Lys Ala Lys Gln Arg His Ile Leu Val Ser His Gly Ala Phe Gly Tyr
 180 185 190

40

Phe Cys Arg Asp Tyr Asn Phe Ser Gln His Thr Ile Glu Lys Ser Ser
 195 200 205

His Val Glu Pro Ser Pro Lys Asp Val Ala Arg Val Phe Arg Asp Ile
 210 215 220

Glu Gln Tyr Lys Ile Ser Ser Val Ile Leu Leu Glu Tyr Ser Gly Arg
 225 230 235 240

50

Arg Ser Ser Ala Met Leu Ala Asp Arg Phe His Met His Thr Val Asn
 245 250 255

Leu Asp Pro Tyr Ala Glu Asn Val Leu Val Asn Leu Lys Thr Ile Ala
 260 265 270

Thr Thr Phe Ser Ser Leu
 275

095593 100101
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<210> 18
 <211> 469
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 18

Met Gly Pro Gly Ser Val Leu Ser Asn His Ser Lys Glu Ala Gly Gly
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10 Ile Ala Ile Asn Asn Val Ile Ile Asp Phe Ser Glu Ile Val Pro Thr
 20 25 30

Lys Asp Asn Ala Thr Val Ala Pro Pro Thr Leu Lys Leu Val Ser Arg
 35 40 45

Thr Asn Ala Asp Ser Lys Asp Lys Ile Asp Ile Thr Gly Thr Val Thr
 50 55 60

20 Leu Leu Asp Pro Asn Gly Asn Leu Tyr Gln Asn Ser Tyr Leu Gly Glu
 65 70 75 80

Asp Arg Asp Ile Thr Leu Phe Asn Ile Asp Asn Ser Ala Ser Gly Ala
 85 90 95

Val Thr Ala Thr Asn Val Thr Leu Gln Gly Asn Leu Gly Ala Lys Lys
 100 105 110

30 Gly Tyr Leu Gly Thr Trp Asn Leu Asp Pro Asn Ser Ser Gly Ser Lys
 115 120 125

Ile Ile Leu Lys Trp Thr Phe Asp Lys Tyr Leu Arg Trp Pro Tyr Ile
 130 135 140

Pro Arg Asp Asn His Phe Tyr Ile Asn Ser Ile Trp Gly Ala Gln Asn
 145 150 155 160

Ser Leu Val Thr Val Asn Gln Gly Ile Leu Gly Asn Met Leu Asn Asn
 165 170 175

40 Ala Arg Phe Glu Asp Pro Ala Phe Asn Asn Phe Trp Ala Ser Ala Ile
 180 185 190

Gly Ser Phe Leu Arg Lys Glu Val Ser Arg Asn Ser Asp Ser Phe Thr
 195 200 205

Tyr His Gly Arg Gly Tyr Thr Ala Ala Val Asp Ala Lys Pro Arg Gln
 210 215 220

50 Glu Phe Ile Leu Gly Ala Ala Phe Ser Gln Val Phe Gly His Ala Glu
 225 230 235 240

Ser Glu Tyr His Leu Asp Asn Tyr Lys His Lys Gly Ser Gly His Ser
 245 250 255

Thr Gln Ala Ser Leu Tyr Ala Gly Asn Ile Phe Tyr Phe Pro Ala Ile
 260 265 270

2363360

Asn Val Gln Ala Gly Asp Val Tyr Ser Leu Thr Gly Asp Val Ser Ile
50 55 60

	Ser	Asn	Val	Asp	Asn	Ser	Ala	Leu	Asn	Lys	Ala	Cys	Phe	Asn	Val	Thr	
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	Ser	Gly	Ser	Val	Thr	Phe	Ala	Gly	Asn	His	His	Gly	Leu	Tyr	Phe	Asn	
					85					90					95		
	Asn	Ile	Ser	Ser	Gly	Thr	Thr	Lys	Glu	Gly	Ala	Val	Leu	Cys	Cys	Gln	
				100					105					110			
10	Asp	Pro	Gln	Ala	Thr	Ala	Arg	Phe	Ser	Gly	Phe	Ser	Thr	Leu	Ser	Phe	
			115					120					125				
	Ile	Gln	Ser	Pro	Gly	Asp	Ile	Lys	Glu	Gln	Gly	Cys	Leu	Tyr	Ser	Lys	
		130					135					140					
	Asn	Ala	Leu	Met	Leu	Leu	Asn	Asn	Tyr	Val	Val	Arg	Phe	Glu	Gln	Asn	
	145					150					155					160	
20	Gln	Ser	Lys	Thr	Lys	Gly	Gly	Ala	Ile	Ser	Gly	Ala	Asn	Val	Thr	Ile	
					165					170					175		
	Val	Gly	Asn	Tyr	Asp	Ser	Val	Ser	Phe	Tyr	Gln	Asn	Ala	Ala	Thr	Phe	
				180					185					190			
	Gly	Gly	Ala	Ile	His	Ser	Ser	Gly	Pro	Leu	Gln	Ile	Ala	Val	Asn	Gln	
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	Ala	Glu	Ile	Arg	Phe	Ala	Gln	Asn	Thr	Ala	Lys	Asn	Gly	Ser	Gly	Gly	
		210					215					220					
30	Ala	Leu	Tyr	Ser	Asp	Gly	Asp	Ile	Asp	Ile	Asp	Gln	Asn	Ala	Tyr	Val	
	225					230					235					240	
	Leu	Phe	Arg	Glu	Asn	Glu	Ala	Leu	Thr	Thr	Ala	Ile	Gly	Lys	Gly	Gly	
					245					250					255		
	Ala	Val	Cys	Cys	Leu	Pro	Thr	Ser	Gly	Ser	Ser	Thr	Pro	Val	Pro	Ile	
				260					265					270			
40	Val	Thr	Phe	Ser	Asp	Asn	Lys	Gln	Leu	Val	Phe	Glu	Arg	Asn	His	Ser	
			275					280					285				
	Ile	Met	Gly	Gly	Gly	Ala	Ile	Tyr	Ala	Arg	Lys	Leu	Ser	Ile	Ser	Ser	
		290					295					300					
	Gly	Gly	Pro	Thr	Leu	Phe	Ile	Asn	Asn	Ile	Ser	Tyr	Ala	Asn	Ser	Gln	
	305					310					315					320	
	Asn	Leu	Gly	Gly	Ala	Ile	Ala	Ile	Asp	Thr	Gly	Gly	Glu	Ile	Ser	Leu	
					325					330					335		
50	Ser	Ala	Glu	Lys	Gly	Thr	Ile	Thr	Phe	Gln	Gly	Asn	Arg	Thr	Ser	Leu	
				340					345					350			
	Pro	Phe	Leu	Asn	Gly	Ile	His	Leu	Leu	Gln	Asn	Ala	Lys	Phe	Leu	Lys	
			355					360					365				

Leu Gln Ala Arg Asn Gly Tyr Ser Ile Glu Phe Tyr Asp Pro Ile Thr
 370 375 380
 Ser Glu Ala Asp Gly Ser Thr Gln Leu Asn Ile Asn Gly Asp Pro Lys
 385 390 395 400
 Asn Lys Glu Tyr Thr Gly Thr Ile Leu Phe Ser Gly Glu Lys Ser Leu
 405 410 415
 10 Ala Asn Asp Pro Arg Asp Phe Lys Ser Thr Ile Pro Gln Asn Val Asn
 420 425 430
 Leu Ser Ala Gly Tyr Leu Val Ile Lys Glu Gly Ala Glu Val Thr Val
 435 440 445
 Ser Lys Phe Thr Gln Ser Pro Gly Ser His Leu Val Leu Asp Leu Gly
 450 455 460
 20 Thr Lys Leu Ile Ala Ser Lys Glu Asp Ile Ala Ile Thr Gly Leu Ala
 465 470 475 480
 Ile Asp Ile Asp Ser Leu Ser Ser Ser Ser Thr Ala Ala Val Ile Lys
 485 490 495
 Ala Asn Thr Ala Asn Lys Gln Ile Ser Val Thr Asp Ser Ile Glu Leu
 500 505 510
 30 Ile Ser Pro Thr Gly Asn Ala Tyr Glu Asp Leu Arg Met Arg Asn Ser
 515 520 525
 Gln Thr Phe Pro Leu Leu Ser Leu Glu Pro Gly Ala Gly Gly Ser Val
 530 535 540
 Thr Val Thr Ala Gly Asp Phe Leu Pro Val Ser Pro His Tyr Gly Phe
 545 550 555 560
 Gln Gly Asn Trp Lys Leu Ala Trp Thr Gly Thr Gly Asn Lys Val Gly
 565 570 575
 40 Glu Phe Phe Trp Asp Lys Ile Asn Tyr Lys Pro Arg Pro Glu Lys Glu
 580 585 590
 Gly Asn Leu Val Pro Asn Ile Leu Trp Gly Asn Ala Val Asp Val Arg
 595 600 605
 Ser Leu Met Gln Val Gln Glu Thr His Ala Ser Ser Leu Gln Thr Asp
 610 615 620
 50 Arg Gly Leu Trp Ile Asp Gly Ile Gly Asn Phe Phe His Val Ser Ala
 625 630 635 640
 Ser Glu Asp Asn Ile Arg Tyr Arg His Asn Ser Gly Gly Tyr Val Leu
 645 650 655
 Ser Val Asn Asn Glu Ile Thr Pro Lys His Tyr Thr Ser Met Ala Phe
 660 665 670

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 100104

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    <211> 375
    <212> PRT
    <213> Chlamydia pneumoniae

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Met  Pro  Ser  Ser  Trp  Lys  Arg  Leu  Leu  Gln  Val  Leu  Ser  His  Lys  Ile
   1              5              10              15

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	Gln	Ala	Leu	Pro	Gly	Ser	Phe	Thr	Ile	Thr	Asp	Asn	Lys	Val	Glu	Thr	
			35					40					45				
	Ser	Leu	Thr	Thr	Ser	Thr	Asn	Leu	Tyr	Gly	Gly	Gly	Ile	Tyr	Ser	Ser	
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10	Gly	Ala	Val	Thr	Leu	Thr	Asn	Ile	Ser	Gly	Thr	Phe	Gly	Ile	Thr	Gly	
	65					70					75					80	
	Asn	Ser	Val	Ile	Asn	Thr	Ala	Thr	Ser	Gln	Asp	Ala	Asp	Ile	Gln	Gly	
					85					90					95		
	Gly	Gly	Ile	Tyr	Ala	Thr	Thr	Ser	Leu	Ser	Ile	Asn	Gln	Cys	Asn	Thr	
				100					105					110			
20	Pro	Ile	Leu	Phe	Ser	Asn	Asn	Ser	Ala	Ala	Thr	Lys	Lys	Thr	Ser	Thr	
			115					120					125				
	Thr	Lys	Gln	Ile	Ala	Gly	Gly	Ala	Ile	Phe	Ser	Ala	Ala	Val	Thr	Ile	
		130					135						140				
	Glu	Asn	Asn	Ser	Gln	Pro	Ile	Ile	Phe	Leu	Asn	Asn	Ser	Ala	Lys	Ser	
	145					150					155					160	
	Glu	Ala	Thr	Thr	Ala	Ala	Thr	Ala	Gly	Asn	Lys	Asp	Ser	Cys	Gly	Gly	
					165					170					175		
30	Ala	Ile	Ala	Ala	Asn	Ser	Val	Thr	Leu	Thr	Asn	Asn	Pro	Glu	Ile	Thr	
				180					185					190			
	Phe	Lys	Gly	Asn	Tyr	Ala	Glu	Thr	Gly	Gly	Ala	Ile	Gly	Cys	Ile	Asp	
			195					200					205				
	Leu	Thr	Asn	Gly	Ser	Pro	Pro	Arg	Lys	Val	Ser	Ile	Ala	Asp	Asn	Gly	
		210					215					220					
40	Ser	Val	Leu	Phe	Gln	Asp	Asn	Ser	Ala	Leu	Asn	Arg	Gly	Gly	Ala	Ile	
	225					230					235					240	
	Tyr	Gly	Glu	Thr	Ile	Asp	Ile	Ser	Arg	Thr	Gly	Ala	Thr	Phe	Ile	Gly	
					245					250					255		
	Asn	Ser	Ser	Lys	His	Asp	Gly	Ser	Ala	Ile	Cys	Cys	Ser	Thr	Ala	Leu	
				260					265					270			
50	Thr	Leu	Ala	Pro	Asn	Ser	Gln	Leu	Ile	Phe	Glu	Asn	Asn	Lys	Val	Thr	
			275					280					285				
	Glu	Thr	Thr	Ala	Thr	Thr	Lys	Ala	Ser	Ile	Asn	Asn	Leu	Gly	Ala	Ala	
		290					295					300					
	Ile	Tyr	Gly	Asn	Asn	Glu	Thr	Ser	Asp	Val	Thr	Ile	Ser	Leu	Ser	Ala	
	305					310					315					320	

Thr Ser Thr Lys Asn Gly Gly Ala Leu Cys Ser Thr Ala Asn Thr Thr
195 200 205

	Val	Gln	Gly	Asn	Ser	Gly	Thr	Val	Thr	Phe	Ser	Ser	Asn	Thr	Ala	Thr	
	210						215					220					
	Asp	Lys	Gly	Gly	Gly	Ile	Tyr	Ser	Lys	Glu	Lys	Asp	Ser	Thr	Leu	Asp	
	225					230					235					240	
	Ala	Asn	Thr	Gly	Val	Val	Thr	Phe	Lys	Ser	Asn	Thr	Ala	Lys	Thr	Gly	
					245					250					255		
10	Gly	Ala	Trp	Ser	Ser	Asp	Asp	Asn	Leu	Ala	Leu	Thr	Gly	Asn	Thr	Gln	
				260					265					270			
	Val	Leu	Phe	Gln	Glu	Asn	Lys	Thr	Thr	Gly	Ser	Ala	Ala	Gln	Ala	Asn	
			275					280					285				
	Asn	Pro	Glu	Gly	Cys	Gly	Gly	Ala	Ile	Cys	Cys	Tyr	Leu	Ala	Thr	Ala	
		290					295					300					
20	Thr	Asp	Lys	Thr	Gly	Leu	Ala	Ile	Ser	Gln	Asn	Gln	Glu	Met	Ser	Phe	
	305					310						315				320	
	Thr	Ser	Asn	Thr	Thr	Thr	Ala	Asn	Gly	Gly	Ala	Ile	Tyr	Ala	Thr	Lys	
					325					330					335		
	Cys	Thr	Leu	Asp	Gly	Asn	Thr	Thr	Leu	Thr	Phe	Asp	Gln	Asn	Thr	Ala	
				340					345					350			
	Thr	Ala	Gly	Cys	Gly	Gly	Ala	Ile	Tyr	Thr	Glu	Thr	Glu	Asp	Phe	Ser	
			355					360					365				
30	Leu	Lys	Gly	Ser	Thr	Gly	Thr	Val	Thr	Phe	Ser	Thr	Asn	Thr	Ala	Lys	
		370					375					380					
	Thr	Gly	Gly	Ala	Leu	Tyr	Ser	Lys	Gly	Asn	Ser	Ser	Leu	Thr	Gly	Asn	
	385					390					395					400	
	Thr	Asn	Leu	Leu	Phe	Ser	Gly	Asn	Lys	Ala	Thr	Gly	Pro	Ser	Asn	Ser	
				405						410					415		
40	Ser	Ala	Asn	Gln	Glu	Gly	Cys	Gly	Gly	Ala	Ile	Leu	Ala	Phe	Ile	Asp	
				420					425					430			
	Ser	Gly	Ser	Val	Ser	Asp	Lys	Thr	Gly	Leu	Ser	Ile	Ala	Asn	Asn	Gln	
			435					440					445				
	Glu	Val	Ser	Leu	Thr	Ser	Asn	Ala	Ala	Thr	Val	Ser	Gly	Gly	Ala	Ile	
		450					455					460					
50	Tyr	Ala	Thr	Lys	Cys	Thr	Leu	Thr	Gly	Asn	Gly	Ser	Leu	Thr	Phe	Asp	
	465					470					475					480	
	Gly	Asn	Thr	Ala	Gly	Thr	Ser	Gly	Gly	Ala	Ile	Tyr	Thr	Glu	Thr	Glu	
					485					490					495		
	Asp	Phe	Thr	Leu	Thr	Gly	Ser	Thr	Gly	Thr	Val	Thr	Phe	Ser	Thr	Asn	
				500					505					510			

Thr Ala Lys Thr Gly Gly Ala Leu Tyr Ser Lys Gly Asn Asn Ser Leu
 515 520 525
 Ser Gly Asn Thr Asn Leu Leu Phe Ser Gly Asn Lys Ala Thr Gly Pro
 530 535 540
 Ser Asn Ser Ser Ala Asn Gln Glu Gly Cys Gly Gly Ala Ile Leu Ser
 545 550 555 560
 10 Phe Leu Glu Ser Ala Ser Val Ser Thr Lys Lys Gly Leu Trp Ile Glu
 565 570 575
 Asp Asn Glu Asn Val Ser Leu Ser Gly Asn Thr Ala Thr Val Ser Gly
 580 585 590
 Gly Ala Ile Tyr Ala Thr Lys Cys Ala Leu His Gly Asn Thr Thr Leu
 595 600 605
 20 Thr Phe Asp Gly Asn Thr Ala Glu Thr Ala Gly Gly Ala Ile Tyr Thr
 610 615 620
 Glu Thr Glu Asp Phe Thr Leu Thr Gly Ser Thr Gly Thr Val Thr Phe
 625 630 635 640
 Ser Thr Asn Thr Ala Lys Thr Ala Gly Ala Leu His Thr Lys Gly Asn
 645 650 655
 30 Thr Ser Phe Thr Lys Asn Lys Ala Leu Val Phe Ser Gly Asn Ser Ala
 660 665 670
 Thr Ala Thr Ala Thr Thr Thr Thr Asp Gln Glu Gly Cys Gly Gly Ala
 675 680 685
 Ile Leu Cys Asn Ile Ser Glu Ser Asp Ile Ala Thr Lys Ser Leu Thr
 690 695 700
 Leu Thr Glu Asn Glu Ser Leu Ser Phe Ile Asn Asn Thr Ala Lys Arg
 705 710 715 720
 40 Ser Gly Gly Gly Ile Tyr Ala Pro Lys Cys Val Ile Ser Gly Ser Glu
 725 730 735
 Ser Ile Asn Phe Asp Gly Asn Thr Ala Glu Thr Ser Gly Gly Ala Ile
 740 745 750
 Tyr Ser Lys Asn Leu Ser Ile Thr Ala Asn Gly Pro Val Ser Phe Thr
 755 760 765
 50 Asn Asn Ser Gly Gly Lys Gly Gly Ala Ile Tyr Ile Ala Asp Ser Gly
 770 775 780
 Glu Leu Ser Leu Glu Ala Ile Asp Gly Asp Ile Thr Phe Ser Gly Asn
 785 790 795 800
 Arg Ala Thr Glu Gly Thr Ser Thr Pro Asn Ser Ile His Leu Gly Ala
 805 810 815

09858937
 101001
 2355360

Val Ser Lys Asn Arg Gly Gly Ala Ile Tyr Val Gly Val Ser Leu Ser
195 200 205

	Ile	Thr	Asp	Asn	Leu	Gly	Pro	Ile	Val	Ile	Lys	Lys	Asn	Gln	Thr	Leu
	210						215					220				
	Glu	Asp	Ser	Ser	Phe	Gly	Gly	Gly	Ile	Phe	Cys	Arg	Ala	Val	Asn	Ile
	225					230					235					240
	Glu	Arg	Asn	Tyr	Gln	Asn	Ile	Gln	Ile	Asn	Asp	Asn	Ala	Ser	Gly	Gln
					245					250					255	
10	Gly	Val	Val	Tyr	Phe	Leu	Pro	Leu	Gly	Val	Ile	Ile	Ser	Ser	Asn	Lys
				260					265					270		
	Glu	Ile	Ile	Glu	Ile	Ser	Asn	His	Ser	Ala	Ser	Ser	Ile	Asn	Thr	Ala
			275					280					285			
	Ser	Gly	Lys	Leu	Tyr	Pro	Gly	Gly	Gly	Gly	Ile	Met	Cys	Thr	Ser	Leu
	290						295					300				
20	Ser	His	Glu	Asn	Asn	Pro	Lys	Gly	Leu	Ile	Phe	Asn	Asn	Lys	Thr	Ala
	305					310					315					320
	Ala	Leu	Ser	Gly	Gly	Val	Tyr	Thr	Arg	Asp	Leu	Ser	Ser	Ser	Lys	Ile
					325					330					335	
	Thr	Val	Arg	Thr	Ala	Phe	Ile	Asn	Asn	Ser	Ala	Thr	Ser	Gly	Gly	Ala
				340					345					350		
	Leu	Ile	Asn	Leu	Ser	Gly	Ile	Gly	Ser	Thr	Pro	Gln	Asn	Phe	Phe	Leu
			355					360					365			
30	Ser	Ala	Asp	Tyr	Gly	Asp	Ile	Leu	Phe	Asn	Asn	Asn	Thr	Ile	Thr	Ser
	370						375					380				
	Ser	Ser	Pro	Gln	Pro	Gly	Tyr	Arg	Asn	Ala	Leu	Tyr	Ala	Ala	Pro	Gly
	385					390					395					400
	Ile	Asn	Leu	Lys	Leu	Gly	Ala	Arg	Gln	Gly	Tyr	Lys	Ile	Leu	Phe	Tyr
					405					410					415	
40	Asp	Pro	Ile	Asp	His	Asp	Gln	Thr	Thr	Thr	Asp	Pro	Ile	Val	Phe	Asn
				420					425					430		
	Tyr	Glu	Pro	His	His	Leu	Gly	Thr	Val	Leu	Phe	Ser	Gly	Ile	Asn	Val
			435					440					445			
	Asp	Ser	Asn	Ala	Thr	Asn	Pro	Leu	Asn	Phe	Leu	Ser	Lys	Phe	Ser	Asn
	450						455					460				
50	Ser	Ser	Arg	Leu	Glu	Arg	Gly	Val	Leu	Ala	Ile	Glu	Asp	Arg	Ala	Ala
	465					470					475					480
	Ile	Ser	Cys	Lys	Thr	Leu	Ser	Gln	Thr	Gly	Gly	Ile	Leu	Arg	Leu	Gly
					485					490					495	
	Asn	Ala	Ala	Leu	Ile	Arg	Thr	Lys	Gly	Pro	Gly	Ser	Ser	Ile	Asn	Phe
				500					505					510		

	Asn	Ala	Ile	Ala	Ile	Asn	Leu	Pro	Ser	Ile	Leu	Gln	Ser	Glu	Ala	Ser
				515				520					525			
	Ala	Pro	Lys	Phe	Trp	Ile	Tyr	Pro	Thr	Leu	Thr	Gly	Ser	Thr	Tyr	Ser
		530					535					540				
	Glu	Asp	Thr	Ser	Ser	Thr	Ile	Thr	Leu	Ser	Gly	Pro	Leu	Thr	Phe	Leu
	545					550					555					560
10	Asn	Asp	Glu	Asn	Glu	Asn	Pro	Tyr	Asp	Ser	Leu	Asp	Leu	Ser	Glu	Pro
					565					570					575	
	Arg	Lys	Asp	Ile	Pro	Pro	Pro	Leu	Pro	Pro	Arg	Cys	Asp	Cys	Lys	Lys
				580					585					590		
	Ile	Asp	Thr	Ser	Asn	Leu	Ile	Val	Glu	Ala	Met	Asn	Leu	Asp	Glu	His
			595					600					605			
20	Tyr	Gly	Tyr	Gln	Gly	Ile	Trp	Ser	Pro	Tyr	Trp	Met	Glu	Thr	Thr	Thr
		610					615					620				
	Thr	Thr	Ser	Ser	Thr	Val	Pro	Glu	Gln	Thr	Asn	Thr	Asn	His	Arg	Gln
	625					630					635					640
	Leu	Tyr	Val	Asp	Trp	Thr	Pro	Val	Gly	Tyr	Arg	Pro	Asn	Pro	Glu	Arg
					645					650					655	
	His	Gly	Glu	Phe	Ile	Ala	Asn	Thr	Leu	Trp	Gln	Ser	Ala	Tyr	Asn	Ala
				660					665					670		
30	Leu	Leu	Gly	Ile	Arg	Ile	Leu	Pro	Pro	Gln	Asn	Leu	Lys	Glu	His	Asp
			675					680					685			
	Leu	Glu	Ala	Ser	Leu	Gln	Gly	Leu	Gly	Leu	Leu	Ile	Asn	Gln	His	Asn
		690					695					700				
	Arg	Glu	Gly	Arg	Lys	Gly	Phe	Arg	Asn	His	Thr	Thr	Gly	Tyr	Ala	Ala
	705					710					715					720
40	Thr	Thr	Ser	Ala	Lys	Thr	Ala	Ala	Arg	His	Ser	Phe	Ser	Leu	Gly	Phe
					725					730					735	
	Ala	Gln	Met	Phe	Ser	Lys	Thr	Arg	Glu	Arg	Gln	Ser	Pro	Ser	Thr	Thr
				740					745					750		
	Ser	Ser	His	Asn	Tyr	Phe	Ala	Gly	Leu	Arg	Phe	Asp	Ser	Leu	Leu	Phe
			755					760					765			
	Arg	Asp	Phe	Ile	Ser	Thr	Gly	Leu	Ser	Leu	Gly	Tyr	Ser	Tyr	Gly	Asp
		770					775					780				
50	His	His	Met	Leu	Cys	His	Tyr	Thr	Glu	Ile	Leu	Lys	Gly	Ser	Ser	Lys
	785					790					795					800
	Ala	Phe	Phe	Asn	Asn	His	Thr	Leu	Val	Ala	Ser	Leu	Asp	Cys	Thr	Phe
					805					810					815	

Leu Pro Ala Arg Ile Thr Arg Thr Leu Glu Leu Gln Pro Phe Ile Ser
 820 825 830
 Ala Ile Ala Leu Arg Cys Ser Gln Ala Ser Phe Gln Glu Thr Gly Asp
 835 840 845
 His Ile Arg Lys Phe His Pro Lys His Pro Leu Thr Asp Leu Ser Ser
 850 855 860
 10 Pro Ile Gly Phe Arg Ser Glu Trp Lys Thr Ser His His Ile Pro Met
 865 870 875 880
 Leu Trp Thr Thr Glu Ile Ser Tyr Val Pro Thr Leu Tyr Arg Lys Asn
 885 890 895
 Pro Glu Met Phe Thr Thr Leu Leu Ile Ser Asn Gly Thr Trp Thr Thr
 900 905 910
 20 Gln Ala Thr Pro Val Ser Tyr Asn Ser Val Ala Ala Lys Ile Lys Asn
 915 920 925
 Thr Ser Gln Leu Phe Ser Arg Val Thr Leu Ser Leu Asp Tyr Ser Ala
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 Gln Val Ser Ser Ser Thr Val Gly Gln Tyr Leu Lys Ala Glu Ser His
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 Cys Thr Phe
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 40 Leu Pro Ala Ala Ala Gln Val Val Tyr Leu His Glu Ser Asp Gly Tyr
 20 25 30
 Asn Gly Ala Ile Asn Asn Lys Ser Leu Glu Pro Lys Ile Thr Cys Tyr
 35 40 45
 Pro Glu Gly Thr Ser Tyr Ile Phe Leu Asp Asp Val Arg Ile Ser Asn
 50 55 60
 50 Val Lys His Asp Gln Glu Asp Ala Gly Val Phe Ile Asn Arg Ser Gly
 65 70 75 80
 Asn Leu Phe Phe Met Gly Asn Arg Cys Asn Phe Thr Phe His Asn Leu
 85 90 95
 Met Thr Glu Gly Phe Gly Ala Ala Ile Ser Asn Arg Val Gly Asp Thr
 100 105 110

2558997
 100104

	Thr	Leu	Thr	Leu	Ser	Asn	Phe	Ser	Tyr	Leu	Ala	Phe	Thr	Ser	Ala	Pro
				115				120					125			
	Leu	Leu	Pro	Gln	Gly	Gln	Gly	Ala	Ile	Tyr	Ser	Leu	Gly	Ser	Val	Met
		130					135					140				
	Ile	Glu	Asn	Ser	Glu	Glu	Val	Thr	Phe	Cys	Gly	Asn	Tyr	Ser	Ser	Trp
	145					150					155					160
10	Ser	Gly	Ala	Ala	Ile	Tyr	Thr	Pro	Tyr	Leu	Leu	Gly	Ser	Lys	Ala	Ser
					165					170					175	
	Arg	Pro	Ser	Val	Asn	Leu	Ser	Gly	Asn	Arg	Tyr	Leu	Val	Phe	Arg	Asp
				180					185					190		
	Asn	Val	Ser	Gln	Val	Tyr	Gly	Gly	Ala	Ile	Ser	Thr	His	Asn	Leu	Thr
			195					200					205			
20	Leu	Thr	Thr	Arg	Gly	Pro	Ser	Cys	Phe	Glu	Asn	Asn	His	Ala	Tyr	His
		210					215					220				
	Asp	Val	Asn	Ser	Asn	Gly	Gly	Ala	Ile	Ala	Ile	Ala	Pro	Gly	Gly	Ser
	225					230					235					240
	Ile	Ser	Ile	Ser	Val	Lys	Ser	Gly	Asp	Leu	Ile	Phe	Lys	Gly	Asn	Thr
					245					250					255	
	Ala	Ser	Gln	Asp	Gly	Asn	Thr	Ile	His	Asn	Ser	Ile	His	Leu	Gln	Ser
				260					265					270		
30	Gly	Ala	Gln	Phe	Lys	Asn	Leu	Arg	Ala	Val	Ser	Glu	Ser	Gly	Val	Tyr
			275					280					285			
	Phe	Tyr	Asp	Pro	Ile	Ser	His	Ser	Glu	Ser	His	Lys	Ile	Thr	Asp	Leu
		290					295					300				
	Val	Ile	Asn	Ala	Pro	Glu	Gly	Lys	Glu	Thr	Tyr	Glu	Gly	Thr	Ile	Ser
	305					310					315					320
40	Phe	Ser	Gly	Leu	Cys	Leu	Asp	Asp	His	Glu	Val	Cys	Ala	Glu	Asn	Leu
					325					330					335	
	Thr	Ser	Thr	Ile	Leu	Gln	Asp	Val	Thr	Leu	Ala	Gly	Gly	Thr	Leu	Ser
				340				345						350		
	Leu	Ser	Asp	Gly	Val	Thr	Leu	Gln	Leu	His	Ser	Phe	Lys	Gln	Glu	Ala
			355					360					365			
50	Ser	Ser	Thr	Leu	Thr	Met	Ser	Pro	Gly	Thr	Thr	Leu	Leu	Cys	Ser	Gly
		370					375					380				
	Asp	Ala	Arg	Val	Gln	Asn	Leu	His	Ile	Leu	Ile	Glu	Asp	Thr	Asp	Asn
	385					390					395					400
	Phe	Val	Pro	Val	Arg	Ile	Arg	Ala	Glu	Asp	Lys	Asp	Ala	Leu	Val	Ser
					405					410					415	

His Gly Ile Leu Tyr His Tyr Phe Val Thr Ile Ile Phe Trp Leu Val
145 150 155 160

Ile Phe Leu Pro Ala Ser Ser Ala Asn Ala Ile Leu Tyr Tyr Thr Gly
115 120 125

Pro Val Lys Ile Ala Leu Ile Asn Cys Leu Gly Leu Tyr Ser Ile Ala
130 135 140

Lys Glu Leu Lys His Ile Leu Asp Lys Val Val Ile Glu Arg Val Lys
145 150 155 160

Asn Ala Leu Ser Pro Thr Glu Lys Leu Phe Leu Thr Tyr Cys Gln Ser
165 170 175

10 His Pro Met Lys His Leu Glu Thr Thr Asn Phe Leu Ser Ser Trp Thr
180 185 190

Thr Asp Ala Glu Leu Arg Gln Phe Val His Lys Gln Gly Leu Glu Phe
195 200 205

Leu Gly Lys Ala Leu Thr Lys Glu Asn Ala Ser Phe Leu Trp Tyr Phe
210 215 220

20 Leu Arg Arg Leu Asp Val Gly Arg Ala Tyr Ile Val Glu Gln Thr Leu
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Lys Thr Trp Tyr Asp His Pro Tyr Val Asp Tyr Phe Lys Ser Arg Leu
245 250 255

Glu Gln Cys Met Lys Val Leu Val Lys
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<212> PRT
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<400> 26
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Ser Tyr Gln Ser Leu Leu Leu Ile Leu Ile Val Ser Ala Pro Pro Ile
20 25 30

40 Ile Leu Ala Ser Ile Val Gly Ile Met Val Ala Ile Phe Gln Ala Ala
35 40 45

Thr Gln Ile Gln Glu Gln Thr Phe Ala Phe Ala Val Lys Leu Val Val
50 55 60

Ile Phe Gly Thr Leu Met Ile Ser Gly Gly Trp Leu Ser Asn Met Ile
65 70 75 80

50 Leu Arg Phe Ala Gly Gln Ile Phe Gln Asn Phe Tyr Lys Trp Lys
85 90 95

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